Trend Study 25C-11-98

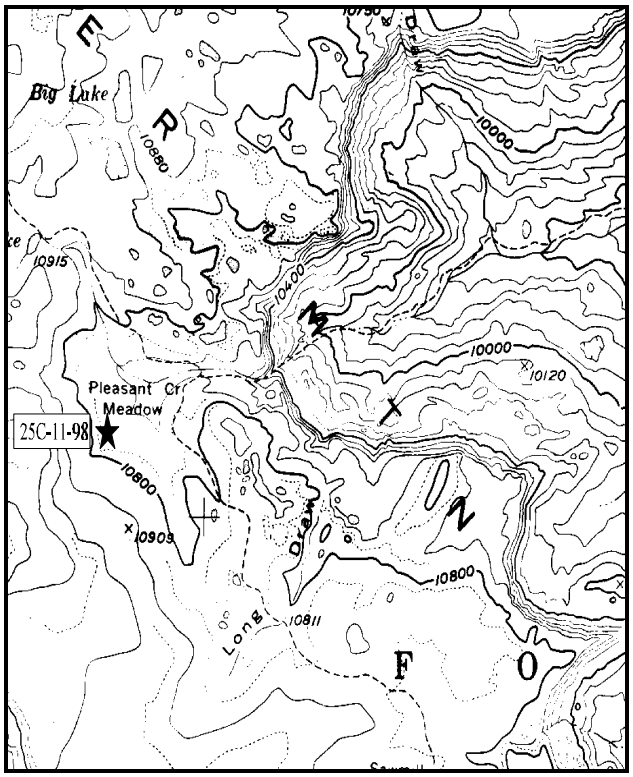
Study site name: Pleasant Creek Exclosure-Out . Range type: Dry meadow .

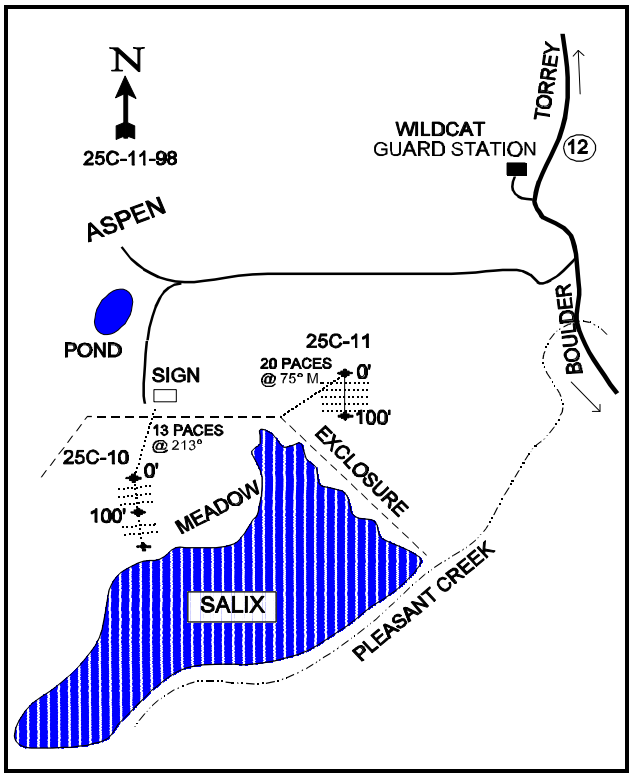
Compass bearing: frequency baseline 163 M degrees.

Footmark (first frame placement) 5 feet. frequency belt placement; line 1 (11, 34,59,71 &95ft).

LOCATION DESCRIPTION

Trend study #25C-11-98 lies outside the exclosure to the east. From the sign, follow the fenceline east to where it makes a 45° corner to the southeast. From this corner, the 0-foot baseline stake is 23 paces away at 65° magnetic, and is marked by browse tag #9052. It also runs at 163° magnetic, and is marked by browse tag #9052.





Map Name: Deer Creek Lake

Diagrammatic Sketch

Township 31S , Range 5E , Section 19

UTM 4216746.216 N, 466075.150 E

DISCUSSION

Trend Study No. 25C-11 (44-11)

The Pleasant Creek Exclosure (outside) was a new study that was established in 1991 and is located just outside the exclosure where study #25C-10 is located. The exclosure was initiated by the U.S. Forest Service and DWR to help determine use by elk in the area. It is located on a meadow, along Pleasant Creek, surrounded by aspen on the north and willow on the south. The site is high in the aspen-conifer zone at about 9,700 feet. Pellet group quadrat frequency data from 1994 show elk at only 5% frequency and cattle at 57% frequency. All of the herbaceous vegetation was heavily utilized in 1994. A pellet group transect read on the site in 1998 estimate 9 elk and 107 cow days use/acre. Only one deer pellet group was encountered. Quadrat frequency of cow pats was almost the same as 1994 estimates, indicating a similar level of use. This area is on a deferred rotation grazing system with use in July one year and September the next.

Soils are fairly deep with an effective rooting depth (see methods) of 19 inches. It is dark brown or black in color with a sandy loam texture and a slightly acid pH (6.5). Organic matter content is relatively high at 6.5%. Large rocks and boulders occur in the area and throughout the soil profile. Bare soil is rare, with most ground cover as vegetation. Erosion should not be a problem unless overgrazed. The site was severely grazed in conjunction with extreme summer drought in 1994.

The vegetation composition is very similar to 25C-10. The only browse species encountered on the site was Wood's rose. The herbaceous component is dominated by Kentucky bluegrass which had a quadrat frequency of 98% in 1991, down to 88% in 1994, and 96% in 1998. It provided 72% of the grass cover in 1994 and 88% in 1998. Slender wheatgrass and Baltic rush are also fairly common. Forbs consist mainly of weedy increasers including: western yarrow, pacific aster, cinquefoil, dandelion, and clover. These provided 95% of the forb cover in 1994 and 1998.

1991 APPARENT TREND ASSESSMENT

Soil trend is stable, but could change with continued heavy grazing and the associated prolonged drought. Comparing the exclosure data with the outside, the outside has less vegetative cover, more rock and pavement, less litter and more bare ground. The browse and herbaceous understory would be considered stable until the next inventory. There are very high frequencies for increaser species on the outside transects.

1994 TREND ASSESSMENT

Soil trend is stable at this time. The transect stakes outside the exclosure could not be found, so the transect was located as close as possible to the old one, but still could have some effect on the data. However, the data has some notable consistent trends. The browse is not a critical part of the summer range. For the herbaceous understory, both the grasses and forbs have downward trends in their nested frequency values which again are closely related to the extended drought and heavy use. Kentucky bluegrass has very high quadrat frequency values which are consistent with a species that is an increaser with moderate to heavy grazing pressure.

TREND ASSESSMENT
soil - stable
browse - not important for this summer range
herbaceous understory - significant downward trend for both grasses and forbs, but still considered in good condition

1998 TREND ASSESSMENT

Trend for soil is up slightly due to the increase in vegetation and litter cover and a decline in percent bare ground to only 2%. The browse consist of a few Wood's rose which are unimportant on this summer range.

However, density has declined since 1994. Trend for the herbaceous understory continues to be slightly down. Sum of nested frequency of grasses and forbs has declined since 1994 although production has increased. Cover of grasses has increased from 33% to 50% and forb cover has gone from 26% to 40%. This is due to the good precipitation this area received in 1997 and 1998. Composition is still poor however, with 88% of the grass cover coming from the increaser Kentucky bluegrass. In addition, 95% of the forb cover is produced by low growing increasers including: western yarrow, pacific aster, cinquefoil, dandelion and clover.

TREND ASSESSMENT
soil - up slightly
browse - down, but unimportant on this summer range
herbaceous understory - down slightly with composition dominated by increasers

HERBACEOUS TRENDS --
Herd unit 25C, Study no: 11

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'91	'94	'98	'91	'94	'98	'94	'98
G	Agropyron trachycaulum	$_{c}$65	$_{b}$58	$_{a}$67	31	29	29	.32	1.89
G	Carex spp.	$_{b}$202	$_{a}$139	$_{a}$53	70	50	23	1.70	.41
G	Festuca ovina	$_{b}$66	$_{a}$19	$_{a}$17	27	8	8	.55	.09
G	Hordeum brachyantherum	$_{a}$-	$_{a}$-	$_{b}$10	-	-	5	-	.19
G	Juncus balticus	$_{ab}$69	$_{b}$92	$_{a}$50	27	33	19	1.63	1.59
G	Koeleria cristata	$_{b}$50	$_{a}$20	$_{a}$10	20	8	5	.09	.07
G	Muhlenbergia montana	$_{b}$68	$_{a}$3	$_{a}$-	27	2	-	.03	-
G	Phleum alpinum	6	-	2	2	-	1	-	.00
G	Poa arida	$_{a}$16	$_{b}$96	$_{a}$19	5	29	8	3.73	.90
G	Poa pratensis	$_{b}$360	$_{a}$290	$_{c}$373	98	88	96	23.66	43.59
G	Sitanion hystrix	$_{a}$-	$_{b}$10	3	-	7	1	.03	.03
G	Stipa comata	$_{a}$2	$_{a}$1	$_{b}$19	1	1	8	.00	.40
G	Stipa lettermani	62	85	12	26	35	6	.92	.42
Total Annual Grasses		0	0	0	0	0	0	0	0
Total Perennial Grasses		966	813	635	334	290	209	32.68	49.62
F	Achillea millefolium	$_{b}$159	$_{ab}$124	$_{a}$100	54	45	42	2.52	1.99
F	Agoseris glauca	$_{a}$-	$_{a}$49	$_{a}$-	-	17	-	.31	-
F	Antennaria parvifolia	15	7	12	5	2	6	.15	.19
F	Androsace septentrionalis (a)	-	$_{a}$3	$_{b}$41	-	1	18	.00	.36
F	Artemisia dracunculus	$_{b}$74	$_{a}$1	$_{a}$-	30	1	-	.00	-
F	Arabis drummondi	$_{b}$59	$_{a}$-	$_{a}$-	26	-	-	-	-
F	Arenaria fendleri	3	-	-	2	-	-	-	-
F	Aster chilensis	$_{b}$138	$_{b}$27	$_{a}$25	53	11	9	.25	.14
F	Astragalus convallarius	-	-	1	-	-	1	-	.00
F	Aster spp.	-	1	-	-	1	-	.00	-

Type	Species	Nested Frequency '91	'94	'98	Quadrat Frequency '91	'94	'98	Average Cover % '94	'98
F	Chenopodium album (a)	-	2	-	-	2	-	.01	-
F	Cryptantha spp.	3	-	-	2	-	-	-	-
F	Descurainia pinnata (a)	1	-	-	1	-	-	-	-
F	Draba spp. (a)	-	4	7	-	3	4	.01	.65
F	Erigeron flagellaris	$_{b}$102	$_{b}$92	$_{a}$24	36	39	10	.34	.17
F	Hymenoxys richardsonii	6	-	-	3	-	-	-	-
F	Lappula occidentalis (a)	-	1	-	-	1	-	.00	-
F	Lychnis drummondii	$_{a}$-	$_{a}$7	$_{b}$-	-	4	-	.02	-
F	Penstemon spp.	2	-	-	1	-	-	-	-
F	Potentilla anersina	$_{a}$-	$_{b}$110	$_{b}$93	-	41	38	2.99	2.48
F	Polygonum douglasii (a)	-	3	6	-	1	2	.00	.01
F	Potentilla gracilis	$_{b}$139	$_{a}$33	$_{a}$24	49	16	13	.52	.35
F	Ranunculus inamoenus	$_{b}$22	$_{ab}$6	$_{a}$10	11	2	4	.01	.04
F	Taraxacum officinale	$_{b}$340	$_{a}$296	$_{a}$322	96	93	98	8.21	16.46
F	Trifolium gymnocarpon	$_{ab}$196	$_{a}$181	$_{b}$221	53	55	62	11.04	17.31
F	Unknown forb-perennial	$_{b}$18	$_{a}$-	$_{a}$1	7	-	1	-	.03
F	Vicia americana	4	1	-	2	1	-	.00	-
F	Viola spp.	3	-	1	1	-	1	-	.00
Total Annual Forbs		1	13	54	1	8	24	0.02	1.02
Total Perennial Forbs		1283	935	834	431	328	285	26.42	39.23

Values with different subscript letters are significantly different at % = 0.10

BROWSE TRENDS --
Herd unit 25C, Study no: 11

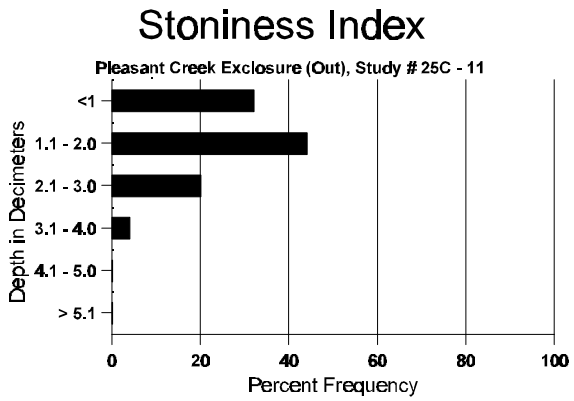
Type	Species	Strip Frequency '94	'97	Average Cover % '94	'98
B	Artemisia nova	-	-	.00	-
B	Rosa woodsii	4	3	.78	1.03
Total for Browse		4	3	0.78	1.03

BASIC COVER --
Herd unit 25C, Study no: 11

Cover Type	Nested Frequency '94	'98	Average Cover % '91	'94	'98
Vegetation	385	394	58.50	69.74	79.94
Rock	184	90	6.50	6.84	3.91
Pavement	63	48	2.50	.32	.75
Litter	312	393	24.75	16.67	82.71
Cryptogams	24	10	0	.09	.03
Bare Ground	132	63	7.75	3.95	1.92

SOIL ANALYSIS DATA --
Herd Unit 25C, Study # 11, Study Name: Pleasant Creek Exclosure (Out)

Effective rooting depth (inches)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
19.0	47.0 (17.7)	6.5	54.0	30.2	15.8	6.5	20.2	403.2	.5



PELLET GROUP FREQUENCY --
Herd unit 25C, Study no: 11

Type	Quadrat Frequency '94	'98
Elk	5	6
Deer	-	2
Cattle	57	56

BROWSE CHARACTERISTICS --
Herd unit 25C, Study no: 11

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Rosa woodsii																		
Y	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	98	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	94	19	-	-	-	-	-	-	-	-	19	-	-	-	380	32	29	19
	98	4	-	-	-	-	-	-	-	-	4	-	-	-	80	20	19	4
D	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	94	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
	98	-	-	-	1	-	-	-	-	-	1	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'91	00%	00%	00%	
'94	00%	00%	00%	-73%
'98	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			Dec:	
	'91	0		0%
	'94	440		14%
	'98	120		17%